adsorption and sensing mechanisms from a scientific point of view. The fast temperature scheduling can also allow for fast "burnin" or cleaning periods during operation.

For use in certain harsh environments, sensing pixels could be coated with a protective layer which would protect the sensor underneath from adverse conditions. Heating a given sensor would cause its protective layer to volatilize or "burn off" thus exposing or "activating" the sensor element. When the performance of a given sensor or another "fresh" sensor are desired, the sensors could be activated as described. This embodiment, which could use for example a thin resinous protective layer could provide for hundreds of sensor elements to be installed in a hazardous environment and remotely activated sequentially over a long period of time.

Although the present invention has been described with reference to particular means, materials and embodiments, from the foregoing description, one skilled in the art can easily ascertain the essential characteristics of the present invention and various changes and modifications may be made to adapt the various uses and characteristics without departing from the spirit and scope of the present invention as described by the claims which follow.

What is claimed is:

1. A temperature-controlled sensor element which comprises:

a support substrate;

a microbridge structure formed on said support substrate;

a heating element formed on said microbridge structure so as to be thermally isolated from said support substrate;

a conductive heat distribution plate formed above said heating element for evenly distributing heat from said heating element and;

a layer of chemical active material formed above said conductive heat distribution plate.

2. A temperature-controlled sensor element according to claim **1**, further including means to measure properties of said layer of chemical active material.

3. A temperature-controlled sensor element according to claim **2**, wherein said means to measure properties of said layer of chemical active material comprises a plurality of contact pads beneath and in contact with said layer of chemical active material.

4. A temperature-controlled sensor element according to claim **1**, wherein said conductive heat distribution plate includes four leads for sensing temperature.

5. A temperature-controlled sensor element according to claim **1**, wherein a central portion of the microbridge structure is suspended over an etch pit which is formed in said substrate support.

6. A temperature-controlled sensor element according to claim **5**, wherein said etch pit is formed with a closed bottom.

7. A temperature-controlled sensor element according to claim **1**, wherein said chemical active material is adsorbent.

8. A temperature-controlled sensor element according to claim **1**, wherein said chemical active material is catalytic.

9. A temperature-controlled sensor element according to claim **1**, wherein said chemical active material is biologically active.

10. A temperature-controlled sensor element according to claim **1**, wherein said conductive heat distribution plate is electrically conductive.

11. A temperature-controlled chemical sensor which comprises:

an array of sensor elements positioned on a substrate support, wherein each of said sensor elements comprises:

a microbridge structure formed on said support substrate;

a heating element formed on said microbridge structure so as to be thermally isolated from said support substrate;

a conductive heat distribution plate formed above said heating element for evenly distributing heat from said heating element and;

a layer of chemical active material formed above said conductive heat distribution plate.

12. A temperature-controlled chemical sensor according to claim **10**, wherein said chemical active material of each of said sensors is of the same material.

13. A temperature-controlled chemical sensor according to claim **11**, wherein said chemical active material of each of said sensors is tuned to be responsive differently to a chemical species.

14. A temperature-controlled chemical sensor according to claim **10**, wherein said chemical active material of each of said sensors is of a different chemical active material.

15. A temperature-controlled chemical sensor according to claim **10**, wherein each of said heat distribution plates includes four leads for sensing temperature.

16. A temperature-controlled chemical sensor according to claim **10**, wherein each of said sensor elements includes an etch pit beneath a central portion of its microbridge structure.

17. A temperature-controlled chemical sensor according to claim **15**, wherein each of said etch pits includes a closed bottom.

18. A temperature-controlled chemical sensor according to claim **10**, wherein said conductive heat distribution plate is electrically conductive.

19. A method of making a temperature-controlled sensor element which comprises:

providing a support substrate having a first layer of an insulating material;

forming a microbridge structure on said support structure;

forming a heating element on said microbridge structure;

forming a second layer of insulating material on said heating element;

forming a conductive heat distribution plate on said second layer of insulating material;

forming a third layer of insulating material on said conductive heat distribution plate; and forming a layer of a chemical active material on said third layer of insulating material.

20. A method of making a temperature-controlled sensor element according to claim **17**, further comprising forming a plurality of contact pads beneath and in contact with said layer of chemical active material.

21. A method of making a temperature-controlled sensor element according to claim **17**, which comprises forming a plurality of similar sensor elements on said substrate support.

22. A method of making a temperature-controlled sensor element according to claim **19**, wherein each of